

حمل الآن

مجاناً وحصرياً

امتحانات رقم (1)

الترم الاول



1 [A] Choose the correct answer :

(1) Which of the following expresses the particles of gases ?

- (a) The interparticle spaces between them are small.
- (b) They are incompressible.
- (c) The attraction forces between them are very weak.
- (d) They move in limited motion.

(2) Walls in hot climate countries are painted in

- (a) light colours to reflect infrared rays.
- (b) dark colours to reflect infrared rays
- (c) light colours to absorb infrared rays.
- (d) dark colours to absorb infrared rays.

[B] Explain the relation between each of the following :

- (1) Type of cells **and** the number of mitochondria organelles in them.
- (2) Gas pressure **and** saving energy in pressure cooker.
- (3) Insulin hormone **and** diabetes disease.
- (4) Photosynthesis **and** type of plastids.

2 [A] Mark (✓) or (X) for each statements, with correction:

- (1) Olivine mineral is formed from magma solidification. ()
- (2) The mineral salts absorbed by plant roots affect the rate of photosynthesis. ()

[B] What happens when :

- (1) Movement of convection currents in the upper mantle.
- (2) Placing polystyrene panels between building walls.
- (3) Adding sodium chloride solution to silver nitrate solution.
- (4) Adding Sudan (IV) solution to fats in a mixture.

3 [A] Complete the following statements:

- (1) Copper sulphate solution colour is, while zinc sulphate solution is
- (2) Gaseous substances are able to diffuse and, while liquid substances are able to flow and

[B] (1) Balance the opposite equation : $C + O_2 \longrightarrow CO$

- (2) You have two equal masses of sand and water at the same temperature. **Which of them** will have a greater increase in temperature when heated by the same heat source for two minutes? **With explanation.**
- (3) **What** is the composition of soda lime mixture? **And what is its importance?**
- (4) **What is the difference between** evaporation process **and** boiling process (In terms of: Temperature).

4 [A] Write the scientific term of each of the following:

- (1) The change of substance directly from solid state to gaseous state without passing through the liquid state.
- (2) Breaking the bonds between the atoms of the reactant molecules and forming new bonds between the atoms of the product molecules.

[B] (1) Rewrite the following equation after balancing it and writing the physical states of the reactants and products:



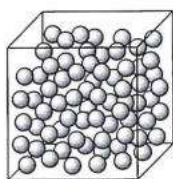
- (2) **What is meant** by fluids?
- (3) **What did** the scientist Helmont conclude from his experiment that lasted 5 years?
- (4) **What is the type of** Mariout soil? **And how** was it formed?

Model 2

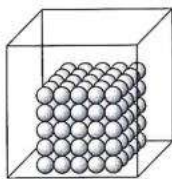
1 [A] Correct the underlined words:

- (1) The affecting factors increase the speed of the chemical reaction without being consumed or changed.
- (2) Fructose is a polysaccharide.

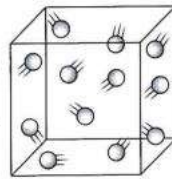
[B] (1) The following figures represent the three main states of matter:



(1)



(2)



(3)

1- **What state** does each of the three figures represent?

2- **What is the type** of the movement of the particles of the substance (2) ?

- (2) **Explain** the properties of table sugar before and after burning it.
- (3) **How can it be deduced that** ammonia gas is released from the mouth of a test tube?

2 [A] Choose the correct answer :

(1) Among the reversible processes are

- | | |
|---------------------------|--------------------------------|
| (a) melting and boiling. | (b) boiling and evaporation. |
| (c) melting and freezing. | (d) freezing and condensation. |

(2) Non-renewable resources can be obtained from the following spheres, **except**

- (a) the atmosphere. (b) the lithosphere.
(c) the hydrosphere. (d) the biosphere.

[B] (1) The radiator represents a basic system in all vehicles (types of cars) :

1- **What** is the importance of the radiator in vehicles?

2- **What** is the liquid used in the radiator? **and why?**

(2) **What** is the granum composed of? **and what type of** reactions occur in it?

(3) **Write the symbolic equation** which represents the cellular respiration process.

3 [A] Complete the following statements :

(1) Heat transfers in a vacuum by and in solids by

(2) mineral is transparent, while mineral is translucent.

[B] (1) Write the balanced symbolic equation which expresses the reaction of calcium chloride solution with sodium sulphate solution, **Including** the physical states of the reactants and the products.

(2) **What is the importance of** DART radar system?

(3) **Rewrite the following equation after balancing :**



(4) **What is the effect of** dissolving glucose in water on the boiling and freezing points of water?

4 [A] Write the number that indicates each of the following :

(1) The number of carbon atoms in one glucose molecule.

(2) The number of water molecules resulting from the conversion of 2 glucose molecules to one maltose molecule.

[B] (1) What is meant by each of the following :

1- Thermal conductivity. 2- Melting process.

(2) **Identify the stage and the name of the reaction** that produces the largest amount of ATP energy in the cellular respiration process.

(3) **What is the result of** the divergence of two continental plates ?

Model 3

1 [A] Write the scientific term of each of the following :

(1) The fourth state of matter.

(2) A system in which both matter and energy are exchanged with the surroundings.

- [B] (1) **How does** ATP molecule convert to ADP molecule?
- (2) **Give an example for the minerals that are formed through :**
- 1- Magma solidification.
 - 2- Crystallization of hydrothermal vents solutions.
- (3) **Mention two factors** that affect the rate of evaporation.
-

2 [A] **Choose the correct answer :**

- (1) Liquids have
- (a) fixed volume and fixed shape.
 - (b) fixed volume and indefinite shape
 - (c) indefinite volume and fixed shape.
 - (d) indefinite volume and shape.
- (2) When air is heated ,
- (a) it expands and its density decreases, so it rises upward.
 - (b) it contracts and its density increases, so it rises upward.
 - (c) it expands and its density decreases, so it sinks downward.
 - (d) it contracts and its density increases, so it sinks downward.

[B] (1) **Sucrose, glucose and maltose are carbohydrates:**

- 1- **What** is the classification of both glucose and sucrose?
- 2- **Mention** a similarity and a difference between sucrose **and** maltose.
- 3- **How** can glucose sugar solution be detected?

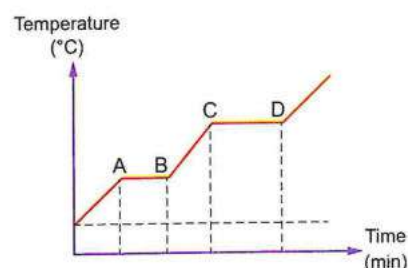
- (2) **Which one** gains heat faster, water or oil? **With explanation.**
-

3 [A] **Mark (✓) or (X) for each of the following statements, with correction :**

- (1) Infrared rays have a thermal effect. ()
- (2) The scientist Brown proved that oxygen is an essential element in the combustion process. ()

[B] (1) **The opposite figure shows the heating curve of water in its three fundamental states under certain conditions :**

- 1- **What is meant by** the melting of ice?
Which part in the graph represents it?
- 2- **Does** the values of temperature shown on the graph change when measured in high-altitude mountains? **With explanation.**



(2) **Give reasons for :**

- 1- Immersing plant leaves in boiling water before testing for the presence of starch.
- 2- Naming the tectonic earthquakes as such.

4 [A] Complete the following statements :

- (1) The changing of matter directly from the gaseous state to the solid state is known as as in the formation of
- (2) The internal energy of the system is the summation of and

[B] (1) Mention a similarity and a difference between halite **and** opal.

(2) **What happens when** dilute acetic acid is added to sodium bicarbonate?

(3) **Write the balanced symbolic equation which represents the following reaction, including the physical states of the reactants and the products and the reaction conditions :**

Heating mercury oxide powder strongly to produce mercury and oxygen.

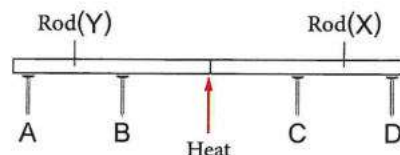
Model 4

1 [A] Choose from column (B) what suits it from column (A), and rewrite the statements completely :

(A)	(B)
Reaction	Is indicated by
(1) Rusting of iron	(1) colour change.
(2) Magnesium with acids	(2) formation of a precipitate.
	(3) formation of gas bubbles.

[B] (1) The figure shows an experiment in which four pins were fixed with identical wax pieces on rods (X) and (Y) of the same length and thickness :

- 1- **What** is the purpose of making this experiment?
- 2- **What** is the scientific explanation for the fall of pin (C) before pin (B)?
- 3- **What** do you conclude if pins (A) and (D) fall at the same time?



(2) **What is the role of** methylene blue solution in respiration experiments?

2 [A] Correct the underlined words:

- (1) The system's temperature represents the internal energy of its particles.
- (2) The African Great Rift is formed due to the formation of a new oceanic crust.

[B] (1) What happens when :

- 1- White light falls on a green leaf.
- 2- A massive meteorite falls on Earth's surface.
- 3- Cooling a hot supersaturated solution of sodium acetate.

- (2) **What happens when** carbon dioxide gas is passed through clear limewater solution? **Does this indicate** a physical or chemical change?
-

3 [A] Complete the following statements:

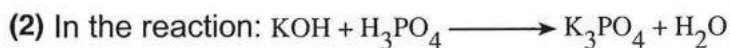
- (1) Fluids include substances and substances.
(2) Silver chloride is a precipitate, its colour turns when it is exposed to sunlight.

[B] What is the difference between each of :

- (1) Solids and gases (**In terms of** : The interparticle spaces).
(2) Iodine solution and Biuret solution (**In terms of** : Usage).
(3) Nile Delta soil and Oasis soil (**In terms of** : How does formation occurs).
(4) Catabolic processes and anabolic processes (**In terms of** : Energy).
-

4 [A] Choose the correct answer :

- (1) Which of the following is correct for all universal systems?
(a) They lose heat.
(b) They exchange energy with the surroundings.
(c) They gain heat.
(d) They are separated by boundaries from the surroundings.



The coefficient of KOH in the balanced equation is

- (a) 1 (b) 2 (c) 3 (d) 4

[B] (1) Give reasons for :

- 1- Starch is not formed in the part of the leaf covered by black tape.
2- The importance of vertical farming is increasing.

- (2) **What type** of chemical substance is cholesterol made of? **And what is the danger** of its increasing level in the blood?

Model 5

1 [A] Write the scientific term of each of the following statements:

- (1) The ability of the fluids to flow easily.
(2) A substance that increases the speed of a chemical reaction without being consumed or changed.

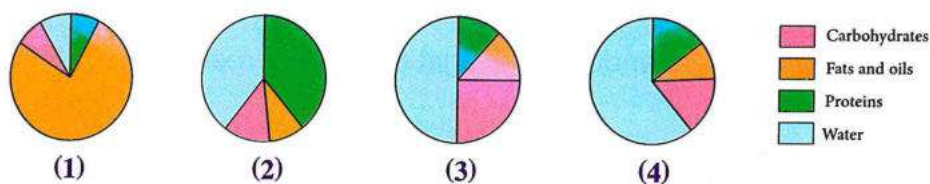
[B] (1) Rewrite the following equations after balancing :



- (2) **Explain the effect** of the concentration of CO_2 gas on the rate of photosynthesis.
- (3) **What do you observe when** a piston of a blocked nozzle syringe that contains air is pressed ?

2 [A] Choose the correct answer :

- (1) Each of the following factors affects the temperature of the system, **except**
- (a) its mass. (b) type of its substance.
(c) its shape. (d) its physical state.
- (2) The following pie charts illustrate the components of four different food samples, each weighing 100 g



Which of these samples stores the greatest amount of energy?

- (a) (1) (b) (2) (c) (3) (d) (4)

[B] Give reasons for :

- (1) The Red Sea is named as such.
- (2) The decrease in the boiling point of water at high altitudes.
- (3) It is preferred to use hollow clay bricks in building house facades.
- (4) Avoiding of touching the formed white powder immediately after burning a strip of magnesium.

3 [A] Mark (✓) or (X) for each of the following statements, with correction :

- (1) Hematite mineral is an iron oxide that is yellow in colour. ()
- (2) Nitrogen is an essential element in the formation of amino acids. ()

[B] (1) Place a plant pot next to a solution of methylene blue under a glass bell jar,
Explain what you observe in the presence and absence of light,
with explanation.

(2) **Does the relative stability** of the sea water temperature mean that it does not absorb thermal energy? **Explain.**

(3) **Apply the concept of chemical reaction to** the reaction of sodium hydroxide with hydrochloric acid to form sodium chloride and water.

4 [A] Complete the following statements:

- (1) During frying eggs, a change happen in the and of the white and the yellow parts, indicating that a chemical reaction has occurred.
- (2) The scientist assumed hypothesis based on his observation of the development of the world map over time.

[B] (1) The container (A) contains one liter of boiling water, and the container (B) contains half a liter of boiling water. **What happens when** both containers touch each other in terms of heat transfer? **With explanation.**

- (2) **What is the effect of** increasing humidity on the rate of evaporation of liquids?
- (3) **What happens** to water during the light dependent reactions of photosynthesis?
- (4) **What is meant by** mineral?

Model 6

1 [A] Correct the underlined words:

- (1) The interparticle spaces between liquid molecules are equal to the interparticle spaces between gas molecules.
- (2) Cans of soft drinks represent an open system.

[B] (1) **How is each of the following formed:**

1- Mount Al-Kamel crater.

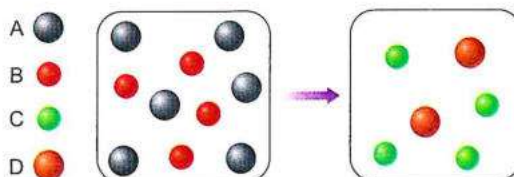
2- Harrat Rahat Mountain.

(2) **Explain** how heat is transferred in gases by convection currents.

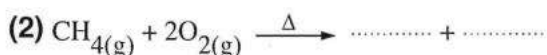
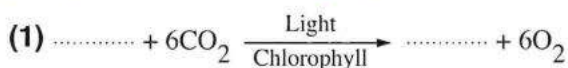
(3) **The opposite figure** illustrates the reaction

between molecules of substance (A)
with molecules of substance (B)
to form the two substances (C) and (D)

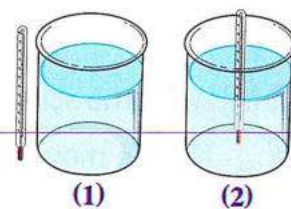
**Write the balanced symbolic equation
which represents this reaction.**



2 [A] Complete the following equations:



[B] (1) The opposite figures show two beakers containing two equal masses of water at the same temperature (60°C):



1- How is heat transferred to the thermometer in each case?

2- Compare the average kinetic energy of water particles in the two beakers, with explanation.

(2) What do you observe when a fruit is left in humid air for a long time?

(3) What is the importance of animal bones in the food industries?

3 [A] Choose the odd word out, then write the relation between the rest:

(1) Butter / Flour / Grapes / Rice.

(2) Opal / Quartz / Halite / Olivine.

[B] (1) Ethane gas (C_2H_6) burns in pure oxygen to give the same products of methane combustion:

1- Write the equation of ethane combustion in a way that verifies the law of conservation of mass.

2- How can the gas produced from this reaction be identified ?

(2) Compare between solids and liquids (in terms of : Fluidity).

(3) What is the substance which is used in the treatment of diabetes, and what is the technique used in its manufacture?

4 [A] Choose the correct answer :

(1) Which of the following is correct about the cellular respiration process?

(a) It occurs in three stages.

(b) The first stage takes place in the cytoplasm.

(c) Krebs cycle reactions take place in the cytoplasm.

(d) CO_2 gas is produced in the first stage.

(2) All the following are soil components, except

(a) water.

(b) clay.

(c) ozone.

(d) humus.

[B] (1) The water cycle in nature includes four main processes:

1- Mention two reversible processes of these processes.

2- Mention two processes that require the absorption of thermal energy.

(2) Describe the inner membrane of a mitochondrion, and mention its functional suitability.

(3) How were the Japanese islands formed by the tectonic plates movement?

Model 7

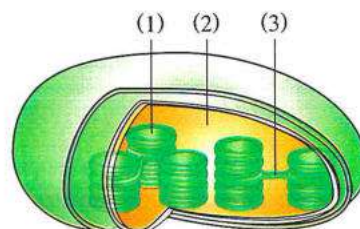
1 [A] Write the scientific term of each of the following:

- (1) The movement of the tectonic plates parallel to each other.
- (2) The coffee that dissolves quickly in water.

[B] (1) The opposite figure represents one of the cell organelles:

1- Does this organelle exist in all living cells?
Explain.

2- Replace the numbers shown in the figure with the appropriate labels.



- (2) Compare between the boiling points of distilled water and the water containing a spoon of glucose sugar dissolved in it at normal atmospheric pressure.
- (3) What is the importance of silver in computers? "Based on what you have studied".

2 [A] Choose the correct answer:

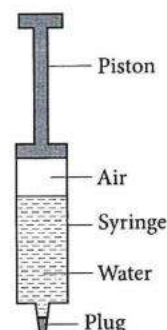
- (1) An experiment was conducted by heating two equal masses of water and ice by using the same heat source.
Which of the following represents the dependent variable?
 - (a) The equality of the two masses.
 - (b) The difference in the type of the two substance.
 - (c) The difference in the rate of change in temperature in the two masses.
 - (d) The equality of the amount of the gained heat.
- (2) A white precipitate is formed when sodium chloride solution is added to

(a) silver nitrate solution.	(b) acetic acid solution.
(c) sodium bicarbonate solution.	(d) copper sulphate solution.

[B] (1) From the opposite figure:

1- What is the difference between the attraction forces found between the particles of each of the two fluids shown in the figure?

2- What happens to the volume of both water and air when pressed the syringe piston?



(2) Write the balanced symbolic equation which represents the following reactions, including the physical states of the reactants and the products:

- 1- The reaction of barium chloride solution with sodium sulphate solution to form sodium chloride solution and a precipitate of barium sulphate.
- 2- The reaction of magnesium with dilute hydrochloric acid.

3 [A] Mark (✓) or (X) for each of the following statements, with correction :

- (1) The specific heat of mercury is greater than that of water. ()
- (2) The formation of glycogen from glucose represents a catabolic process. ()

[B] (1) Explain the scientific basis for the sea breeze phenomenon.

(2) What are the observations which can prove that the burning of sugar represents a chemical reaction?

(3) Carbohydrates are chemical nutrients :

1- Mention two sources of carbohydrates.

2- Explain the importance of carbohydrates for plant cell walls.

4 [A] Complete the following statements:

- (1) of wax represents a physical change, while of wax represents a chemical change.
- (2) Magma rich in magnesium and iron forms minerals when it solidifies such as,

[B] (1) What is the property that helps us to recognize each mineral of the following:

1- Galena.

2- Pure quartz.

(2) What role do proteins play in:

1- Laundry detergents.

2- Supporting the immune system.

Model 8

1 [A] Give one example for each of the following:

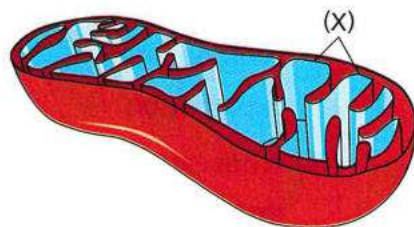
(1) Transported soil.

(2) Thermal insulator substance.

[B] (1) The opposite figure represents one of the cell organelles:

1- What is the name of this organelle, and what is the biological process that occurs in it?

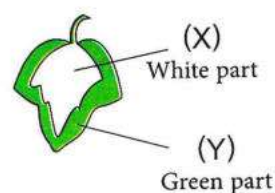
2- Explain the cause and effect in the structural adaptation of the membrane (X).



(2) The opposite figure illustrates the shape of a plant leaf :

1- **What** is the pigment that causes the green colour in the leaf?

2- **Identify** the part that turns dark blue when we use an indicator to detect the starch in the leaf, **with explanation**.



2 [A] Correct the underlined words :

(1) Hematite mineral is one of the ores of copper.

(2) Ionized gases represent the fourth state of matter, which is albumin.

[B] Explain the relation between each of :

(1) The pressure cooker **and** energy preservation.

(2) The mass of the substance **and** the amount of change in its temperature when heated.

(3) The luster of objects **and** their ability to reflect infrared rays.

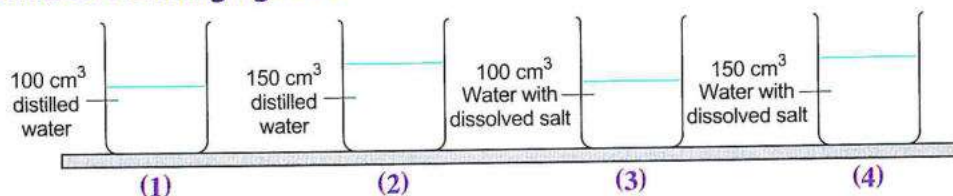
(4) Fireworks **and** chemical changes.

3 [A] Complete the following statements:

(1) Fructose sugar is a, while starch is a

(2) The cause collapses, and Earth cracks.

[B] (1) From the following figures :

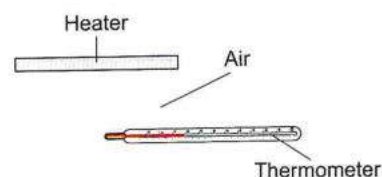


When the content of each container is heated with the same heat source for the same period of time. **In which case** the boiling point will be the highest ? **With an explanation**.

(2) **Why** is the falling of sugar granules from a punctured bag not considered fluidity?

(3) Pumping air slowly into a car tire does not raise the temperature. **Does the average** kinetic energy of air molecules **increase or remain unaffected?** **With explanation**.

(4) **What is (are) the method(s)** by which heat is transferred from the heater to the thermometer as shown in the opposite figure?



4 [A] Write the scientific term for each of the following:

- (1) The form in which excess sugar is stored in the liver.
- (2) The boundary lines at which the tectonic plates converge.

[B] (1) Dilute acetic acid reacts with sodium bicarbonate to form sodium acetate salt, water, and carbon dioxide gas:

- 1- **How** can this reaction be indicated?
 - 2- **How** can the evolution of CO_2 gas be detected chemically?
 - 3- **How** can a supersaturated solution of sodium acetate be prepared?
- (2) **Rewrite the following word equation in symbolic form, including the physical states of the reactants and the products:**

Hydrogen sulphide solution + Sulphur dioxide gas $\longrightarrow$ Solid sulphur + Water

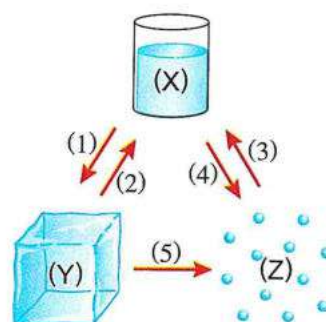
Model 9

1 [A] Choose the correct answer:

- (1) The stems of potatoes contain plastids which are.....
 - (a) green only.
 - (b) colourless only.
 - (c) green and red.
 - (d) coloured and colourless.
- (2) Chloroplasts are similar to mitochondria in having
 - (a) cristae.
 - (b) double membrane.
 - (c) thin membranes.
 - (d) grana thylakoids.

[B] Study the opposite figure, then answer the following :

- (1) **Identify** the symbol of the substance whose molecules possess the highest kinetic energy, **and Describe** the attraction forces between its molecules.
- (2) **What** is the process expressed by the number (5)? **Give an example** for a substance that undergoes this process.



- (3) **Identify** the numbers of all the processes that are accompanied by gaining thermal energy.
- (4) **Clarify** the direction of heat transfer when both substances (X) and (Y) come in touch with each other.

2 [A] Mark (✓) or (X) for each of the following statements, with correction :

- (1) In the cellular respiration, glucose is hydrolyzed in the mitochondria. ()
- (2) Fatty acids are the building units of proteins. ()

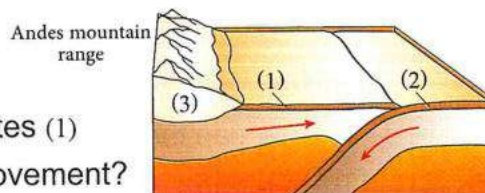
[B] (1) This opposite figure shows

how the Andes mountain range was formed :

1- What is the type of each of the two plates (1) and (2), and **what is the type** of their movement?

2- What is the type of the crust (3) ?

With explanation.



(2) **Why can** a container its volume is 100 cm^3 hold 120 cm^3 of air but it cannot hold 120 cm^3 of water?

(3) **What is the mass** of magnesium oxide produced from the combination of 2.4 g of magnesium with 1.6 g of oxygen? **With explanation.**

3 [A] Choose from column (B) what suits it in column (A), and rewrite the statements completely:

(A)	(B)
(1) Sulphur is a mineral	(1) Is rich in silica.
(2) Mica is a mineral	(2) Is a yellow-coloured element.
	(3) Is rich in magnesium and iron.

[B] (1) Write the chemical equation indicating the transformation of ADP molecule into ATP molecule.

(2) **What is meant by** the specific heat of iron equals $450 \text{ J/kg}^\circ\text{C}$?

(3) **What plant** did the scientist Helmont use in his experiment, **and What are the changes** which he observed after 5 years from the start of his experiment ?

(4) **What is the danger** of the excessive intake of dietary supplements rich in amino acids ?

4 [A] Choose the correct answer:

(1) The reaction of zinc with copper sulphate solution is indicated by

- (a) the change in the colour of the solution and the formation of bubbles.
- (b) the formation of gas bubbles only.
- (c) the disappearance of the colour of the solution and formation of a precipitate.
- (d) the formation of a white substance.

(2) Three samples of equal masses of ice (at -5°C) and aluminum (at 20°C) and water (at 20°C), were supplied with the same amount of thermal energy. What is the correct arrangement of the fastest temperature change ?

- (a) Aluminum then water then ice. (b) Aluminum then ice then water.
(c) Ice then water then aluminum. (d) Water then aluminum then ice.

[B] (1) **Where** is it preferred to place the space heater in the room? **Explain**.

(2) **What** are the substances which react with each other to form soap?

(3) **Balance the following equation:** $\text{Fe}_3\text{O}_4 + \text{H}_2 \longrightarrow \text{Fe} + \text{H}_2\text{O}$

(4) **Explain the relation between** the rate of gas diffusion **and** the mass of its molecules.

Model 10

1 [A] **Choose the odd word (or statement) out, then write the relation between the rest:**

(1) Sublimation / Boiling / Deposition / Melting.

(2) They spread in space / Their speed is 300,000 km/s / They have a thermal effect / Visible waves.

[B] (1) **The opposite figure** shows two continents when they started to separate from each other. **What are these two** continents, **and when** did they begin to separate from each other?

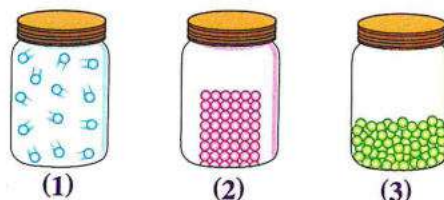


(2) **What is meant by** enzymes?

(3) **The opposite figure represents the particles of matter in its three states :**

1- **What** is the physical state of matter when it is in state (3)?

2- **Explain** how the movement of particles of matter determines its physical state.



2 [A] **Complete the following statements:**

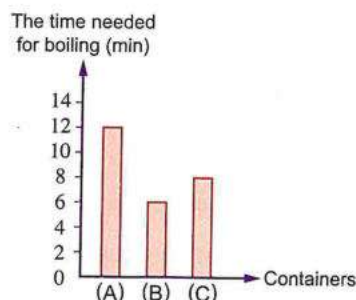
(1) Iron when it is exposed to moist air, and this is a change.

(2) It is recommended to reduce consumption of white carbohydrates such as

[B] (1) **Three different amounts of water were heated in three identical containers, and the opposite graph represents the time taken for each amount to reach boiling point:**

1- **Which** of these containers contains the least amount of water?

2- **What are the independent variable and the controlled variable in this experiment?**



(2) In the following reaction :

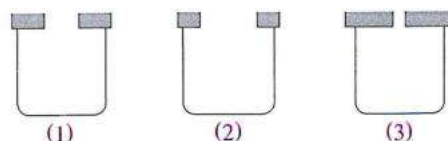
Magnesium + Dilute sulphuric acid $\longrightarrow$ Magnesium sulphate solution + Hydrogen

- 1- **Write** the balanced symbolic equation of the chemical reaction, **including** the physical states of the reactants and the products.
- 2- **Calculate** the mass of dilute sulphuric acid needed to react with 24 g of magnesium to produce 120 g of magnesium sulphate and 2 g of hydrogen.

3 [A] Write the scientific term of each of the following statements:

- (1) The process of converting protein molecules into molecules of amino acids.
- (2) The decomposed organic matter present in the soil.

[B] (1) The containers shown in the opposite figure contain equal amounts of water:



1- **Why** do the amounts of water in the three containers decrease after several hours?

2- **Which of these** containers has the least amount of water after several hours? **with explanation.**

- (2) **Why is it advised** to lie on the ground when smoke from a fire spreads in a closed space?
- (3) **What is the difference between** physical change **and** chemical change of substances?

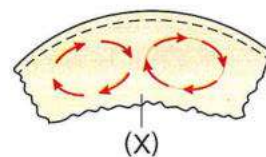
4 [A] Correct the underlined words:

- (1) Glucose absorbs the energy of red and blue light in photosynthesis.
- (2) In the first stage of cellular respiration, each glucose molecule is converted into 2 molecules of adenosine.

[B] (1) The opposite figure represents the movement of magma in the layer (X) of Earth.

What is the way in which magma moves in the layer (X)?

And what is the name of this layer?



- (2) An egg, a spoonful of starch, and water were placed in the blender to make a liquid mixture.

Mention three reagents that give positive results with the nutritional components in this mixture.

- (3) **How** were the Hawaiian Islands formed?

Model 1

1

(A) (1) c

(2) a

- (B) (1) The number of mitochondria increases in cells that require a large amount of energy, such as muscles and liver cells.
- (2) The increase in pressure due to the trapping of water vapour inside the pressure cooker reduces cooking time, which helps to save energy.
- (3) A deficiency in the pancreas secretion of insulin hormone causes diabetes.
- (4) Photosynthesis occurs only in chloroplasts because they contain chlorophyll pigment.

2

(A) (1) ✓ (2) ✓

- (B) (1) The tectonic plates move in a slow, continuous motion that is not noticeable relative to each other.
- (2) Thermal insulation increases, preventing people inside the building from feeling external temperature changes, which reduces air conditioning costs inside the buildings.
- (3) A white precipitate of silver chloride is formed, which turns violet when it is exposed to sunlight.
- (4) A red-orange colour is formed on the surface of the mixture containing fats.

3

(A) (1) blue / colourless.

(2) be compressed / diffuse.

(B) (1) $2C + O_2 \longrightarrow 2CO$

- (2) Sand / Because the specific heat of sand is lower than that of water.
- (3) Sodium hydroxide and calcium oxide / Used for absorbing CO_2 gas.
- (4) Evaporation process occurs at any temperature, while the boiling process occurs at a certain temperature (boiling point).

4

(A) (1) Sublimation.

(2) Chemical reaction.

(B) (1) $2H_2O_{(l)} \longrightarrow 2H_{2(g)} + O_{2(g)}$

- (2) Substances that has fluidity property and take the shape of their container.
- (3) He concluded that water is a key element in the growth of plants.
- (4) Residual sedentary soil, formed from the slow weathering of sandy and limestone rocks in the same place.

Model 2

1

(A) (1) catalysts.

(2) monosaccharide.

(B) (1) 1. (1): The liquid state,

(2): The solid state,

(3): The gaseous state.

2. Particles of the substance vibrate in their fixed position without moving to another position.

(2) **Before burning:** A white solid, odourless substance.

After burning: A black substance with the evolution of smoke and a strong odour.

- (3) When a damp (wet with water) universal indicator strip is brought close to the mouth of the tube, its colour changes.

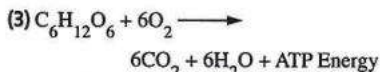
2

(A) (1) (c) (2) (d)

(B) (1) 1. A cooling system that protects cars engines from damage due to high temperatures.

2. Water, as it is an excellent cooling liquid due to its high specific heat.

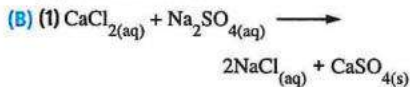
(2) It is composed of structural units called thylakoids, their number is 15 or more / Light dependent reactions occur in it.



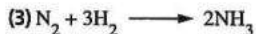
3

(A) (1) radiation / conduction.

(2) Quartz / mica.



(2) It changes the orbit of some meteorites to protect Earth from meteorite collisions.



(4) The boiling point will be higher than 100°C and the freezing point will be lower than 0°C

4

(A) (1) 6 atoms. (2) 1 molecule.

(B) (1) Answer by yourself.

(2) The second stage in electron transport chain reactions.

- (3) A new oceanic crust or new continental crust is formed.

Model 3

1

(A) (1) Plasma state. (2) Open system.

(B) (1) By losing one phosphate group.

(2) 1. Mica. 2. Apatite.

"Or any other correct answer."

(3) Temperature and surface area of the liquid.

"Or any other correct answer."

2

(A) (1) (b) (2) (a)

(B) (1) 1. • Glucose is a monosaccharide.
• Sucrose is a disaccharide (oligosaccharides).

2. • **Similarity:** Both are disaccharides (oligosaccharides).

• **Difference:** Sucrose is composed of one glucose unit and one fructose unit, while maltose is composed of two glucose units.

3. By using Benedict's solution, which turns from the blue colour into green, orange, or red colour depending on the concentration of glucose.

(2) Oil, due to its lower specific heat compared to that of water.

3

(A) (1) ✓

(2) The scientist Antoine Lavoisier proved that

(B) (1) 1. Its the changing from the solid state to the liquid state / Part AB

2. Yes / Because on high-altitude mountains, the atmospheric pressure decreases, which decreases the boiling point and increases the freezing point.

(2) 1. To break down the cell walls.

2. Because they occur at the boundaries of tectonic plates due to the movement of the tectonic plates.

4

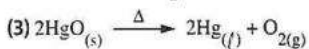
(A) (1) deposition / frost.

(2) kinetic energy / potential energy.

(B) (1) • **Similarity:** Both have a specific chemical composition.

• **Difference:** Halite has a definite crystalline structure, while opal is not crystalline.

(2) A chemical reaction occurs, indicated by the occurrence of effervescence and the evolution of bubbles of CO_2 gas.



Model

4

1

(A) $(1 / 1) \times (2 / 3)$.

(B) (1) 1. To investigate the difference in the thermal conductivity between (X) and (Y) rods.

2. The thermal conductivity of rod (X) is better than that of rod (Y).

3. Rods (X) and (Y) are made of the same substance.

(2) Indicating the consumption of O_2 in the process of cellular respiration.

2

(A) (1) the average kinetic energy.

(2) The Red Sea.

(B) (1) 1. The leaf absorbs all colours of white light and reflects only green light.

2. A massive circular crater is formed.

3. Crystals of sodium acetate are formed.

(2) Clear limewater turns milky, indicating a chemical change.

3

(A) (1) liquid / gaseous.

(2) white / violet.

(B) (1) The interparticle spaces between solid particles are very small, while they are very large between gaseous particles.

(2) Iodine solution is used to detect starch, while Biuret solution is used to detect proteins.

(3) Nile Delta soil was formed by the transport of rock fragments from the Ethiopian plateau by the Nile River, while Oasis soil was formed by the slow weathering of sandy and limestone rocks in the same place.

(4) Catabolic process is accompanied by the release of energy, while anabolic process is accompanied by the consumption of energy.

4

(A) (1) (d)

(2) (c)

(B) (1) 1. Due to the absence of light, so photosynthesis does not take place in this part.

2. To provide a sustainable solution to the problem of lacking arable land.
- (A) A fat substance / Its deposition on walls of the arteries leads to their blockage and increases the risk of heart diseases.

Model

5

- 1
 - (A) (1) Fluidity. (2) Catalyst.
 - (B) (1) $4\text{NH}_3 + 5\text{O}_2 \longrightarrow 4\text{NO} + 6\text{H}_2\text{O}$
 2. $\text{PCl}_5 + 4\text{H}_2\text{O} \longrightarrow \text{H}_3\text{PO}_4 + 5\text{HCl}$
 - (2) The rate of photosynthesis increases with increasing the concentration of CO_2 gas up to 0.1%, after that its rate becomes constant.
 - (3) The air is compressed (its volume decreases).

- 2
 - (A) (1) (c) (2) (a)
 - (B) (1) Because the presence of plenty of red algae and the reflection of the red colour of mountains and rocks on its shores.
 - (2) Due to the decrease in atmospheric pressure, where the temperature decreases by 1°C for every 300 m of altitude.
 - (3) Because the thermal conductivity of the air in the hollow of the bricks is low, which leads to thermal insulation.
 - (4) Because it becomes very hot after the chemical reaction.

3

(A) (1) red in colour.

(2) ✓

(B) (1) • In the presence of light, the colour of the methylene blue solution does not change, due to the oxygen produced from the process of photosynthesis.

- In absence of light, the colour of the methylene blue solution disappears, as oxygen is consumed in the process of respiration.

(2) No / Because during the processes of melting and boiling, the temperature remains constant despite the absorption of thermal energy, as the absorbed thermal energy weakens the attraction forces between the particles of the substance.

(3) The bonds between the atoms of the reactant molecules (sodium hydroxide and hydrochloric acid) are broken, and new bonds are formed between the atoms to create the product molecules (sodium chloride and water).

4

(A) (1) colour, texture.

(2) Wegener / continental drift.

(B) (1) No heat transfer occurs, as the temperatures of the water in the two containers are equal.

(2) The rate of evaporation decreases.

(3) It decomposes into hydrogen and oxygen.

(4) Answer by yourself.

Model 6

1

(A) (1) less than. (2) a closed.

(B) (1) 1. As a result of a meteorite fall on the surface of Earth in the Western Desert of the New Valley Governorate.

2. As a result of volcanic activity in Saudi Arabia.

(2) Hot air (of lower density) rises and is replaced by cold air (of higher density).

(3) $3A + 2B \longrightarrow 2C + D$

2

(A) (1) $6H_2O / C_6H_{12}O_6$

(2) $CO_{2(g)} / 2H_2O_{(v)}$

(B) (1) (1) : By convection or radiation.
(2) : By conduction.

2. The average kinetic energies of water particles in the two beakers are equal due to their equal temperatures.

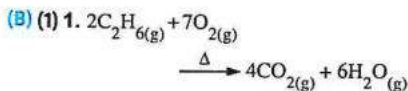
(2) A chemical change occurs that causes it to go rotten.

(3) Gelatin, used in food industries, is extracted from animal bones.

3

(A) (1) Butter / Sources rich in carbohydrates.

(2) Opal / Minerals.



2. When CO_2 gas passes through clear limewater, it turns milky.

(2) Solids do not have fluidity property, unlike liquids.

(3) Insulin / Genetic engineering technology.

4

(A) (1) (b) (2) (c)

(B) (1) 1. Evaporation and condensation (or melting and freezing).

2. Evaporation and melting.

(2) Folded forming folds (cristae) to increase the inner surface area of the mitochondrion to produce more energy.

(3) They are formed through the convergence of two oceanic plates.

Model 7

1

(A) (1) Transform movement.

(2) Instant coffee.

(B) (1) 1. No / Because it represents the chloroplast, which is found only in the green parts of plants and in green algae.

2. (1): Thylakoids of grana.

(2): Stroma.

(3): Thin membrane.

(2) The boiling point of distilled water ($100^\circ C$) is less than the boiling point of water with dissolved glucose sugar at normal atmospheric pressure.

- (3) It is used in cooling systems to dissipate excess heat.

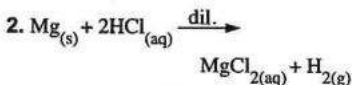
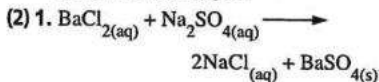
2

(A) (1) (C)

(2) (A)

(B) (1) 1. The attraction forces between water molecules are stronger than those between air molecules.

2. The volume of air decreases, while the volume of water remains unchanged.



3

(A) (1) less than that of water.

(2) an anabolic process.

(B) (1) The rising of hot air in contact with the land to a higher altitude, to be replaced by the cold air coming from the sea.

(2) Its colour changes, evolution of smoke and strong odour.

(3) 1. Bread and potatoes "or any other correct answer".

2. The formation of cellulose, which is a component of plant cell walls.

4

(A) (1) melting / combustion.

(2) olivine / pyroxene.

(B) (1) 1. Luster (shining).

2. Transparency.

(2) 1. Formation of enzymes that remove stains.

2. Formation of antibodies that support the immune system against the disease-causing microbes.

Model

8

1

(A) (1) Nile Delta soil.

(2) Polystyrene.

(B) (1) 1. Mitochondrion, cellular respiration process.

2. • **Cause:** The inner membrane of the mitochondrion forms folds that increase its inner surface area.

• **Effect:** This enhances energy production during the cellular respiration process with high efficiency.

(2) 1. Chlorophyll pigment.

2. (Y) / Because this part carries out photosynthesis and produce glucose which is converted into starch, which in turn causes iodine to turn dark blue.

2

(A) (1) iron.

(2) plasma state.

(B) (1) The trapping of water vapour inside a pressure cooker leads to increasing the pressure inside it, which decreases the cooking time and saves fuel (energy).

(2) The amount of change in the temperature of a substance increases as its mass decreases.

(3) The ability of objects to reflect infrared rays increases with increasing their brightness (light colours).

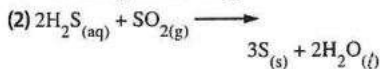
(4) When fireworks are lit, a chemical reaction occurs, accompanied by emission of light and heat.

3

- (A) (1) monosaccharide/ polysaccharide.
 (2) earthquakes/ landslide.
- (B) (1) Container (3) / Because it contains impurities in the form of table salt in addition to having a lower mass (due to its smaller volume) than that of water in container (4).
 (2) Because they are solid substances and their falling does not change their shape.
 (3) The average kinetic energy of air molecules is not affected as the temperature does not change.
 (4) Radiation or convection.

4

- (A) (1) Glycogen.
 (2) Convergent boundaries.
- (B) (1) 1. Effervescence and the evolution of gas bubbles of carbon dioxide occur.
 2. Clear limewater turns milky when CO_2 gas passes through it.
 3. A large quantity of salt is added to a small volume of water with heating and stirring.



Model

9

1

- (A) (1) (b) (2) (b)
- (B) (1) The substance (Z) has very weak attraction forces between its molecules.

- (2) Sublimation / Dry ice (or solid iodine).
 (3) (2), (4), (5).
 (4) Heat transfers from (X) to (Y) until reaching thermal equilibrium.

2

- (A) (1) in the cytoplasm.
 (2) Amino acids are
- (B) (1) 1. Plate (1): Continental plate.
 Plate (2): Oceanic plate.
 • Convergent movement.
 2. Continental crust / Because there is a land above it.
 (2) Because air is compressible, unlike water.
 (3) 4 g / Because according to the law of conservation of mass, the total mass of the reactants is equal to the total mass of the products.

3

- (A) $(1/2) \cdot (2/1)$.
- (B) (1) $\text{ADP} + \text{P} \longrightarrow \text{ATP}$
 (2) It requires 450 J to raise the temperature of 1 kg of it by 1°C
 (3) The willow tree / He noticed a significant increase in the mass of the sapling while slight decrease in the mass of the soil.
 (4) The liver and kidneys are exposed to serious risks.

4

- (A) (1) (c) (2) (b)
- (B) (1) It is preferred to place it on the room floor to ensure good heat distribution, as the space heater warms the surrounding air, causing the hot air to rise and cooler air to move down to be heated.

(2) Oil with caustic soda solution.



(4) The speed of gas diffusion increases as the mass of its molecules decreases, and vice versa.

Model 10

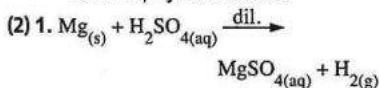
- 1
- (A) (1) Deposition / changes that are accompanied by gaining of heat.
- (2) Visible waves / Properties of the infrared rays.
- (B) (1) Africa and South America began to separate approximately 135 million years ago.
- (2) Proteins that act as catalysts in the reactions occurring in the cells of living organisms without the need for heating.
- (3) 1. The liquid state.
2. When the molecules of a substance vibrate in the fixed position, they are in the solid state, and when the movement of the molecules is random in all directions, they are in the gaseous state, but the molecules of liquids move only within the container in which they are placed.

- 2
- (A) (1) rusts / chemical.
- (2) white sugar / white flour.

(B) (1) 1. Container (B).

2. • **Independent variable:** Mass of the liquid.

• **Controlled variables:** Identical containers, type of substance, and its physical states.



2. Mass of products =

$$120 + 2 = 122 \text{ g}$$

Mass of sulphuric acid =

$$122 - 24 = 98 \text{ g}$$

3

(A) (1) Catabolism.

(2) Humus.

(B) (1) 1. Due to the evaporation of surface water molecules.

2. Container (2) / Due to increasing the surface area exposed to evaporation.

(2) Because the hot air rises and is replaced by cold air.

(3) A physical change does not involve a change in the chemical composition of substances, unlike a chemical change.

4

(A) (1) Chlorophyll.

(2) pyruvic acid.

(B) (1) Convection currents, upper mantle.

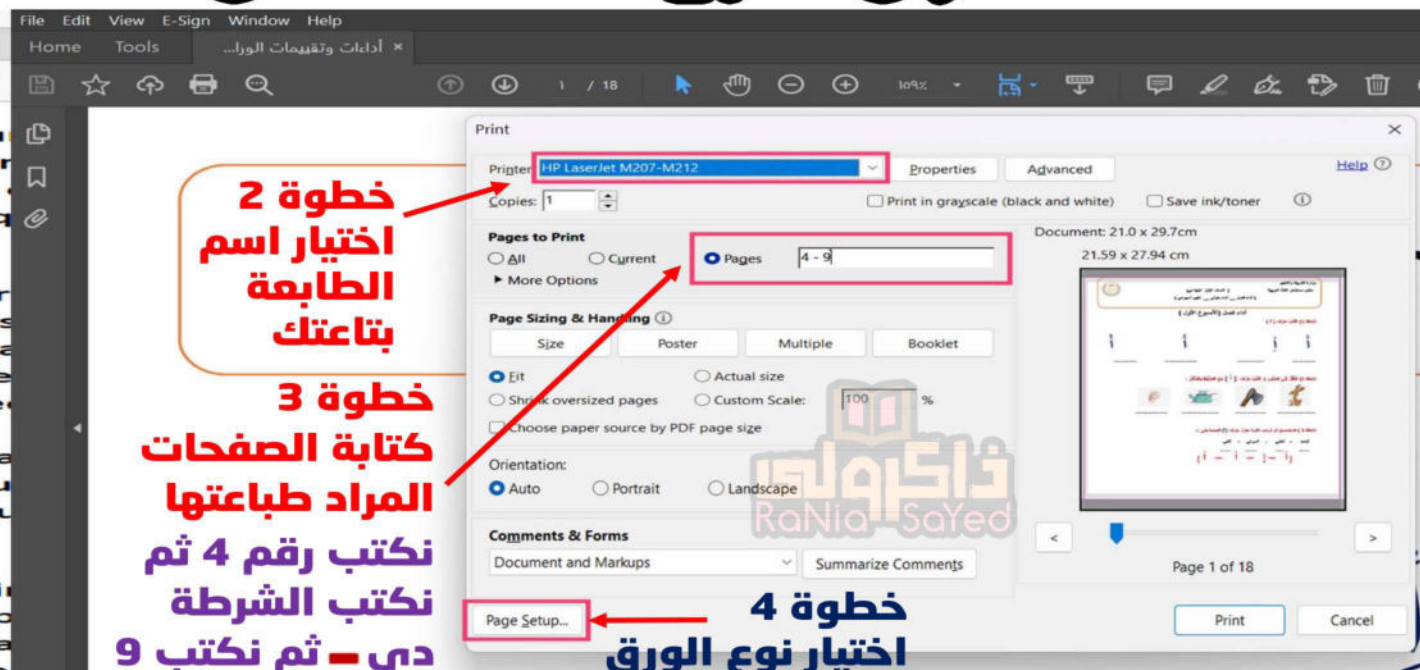
(2) Sudan (IV) solution, Biuret solution, and iodine solution.

(3) Due to volcanic activity.

كيفية طباعة صفحات معينة من ملف معين مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9



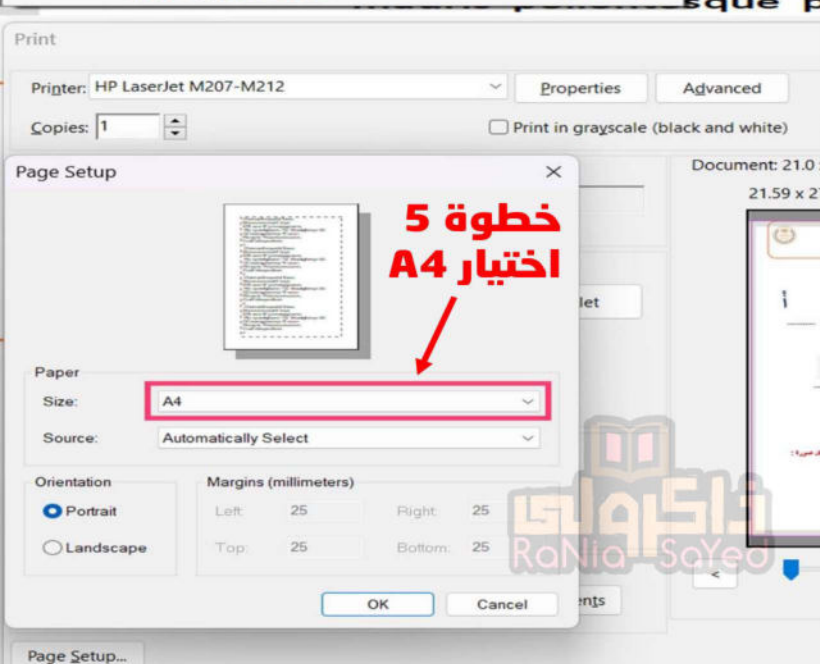
خطوة 1



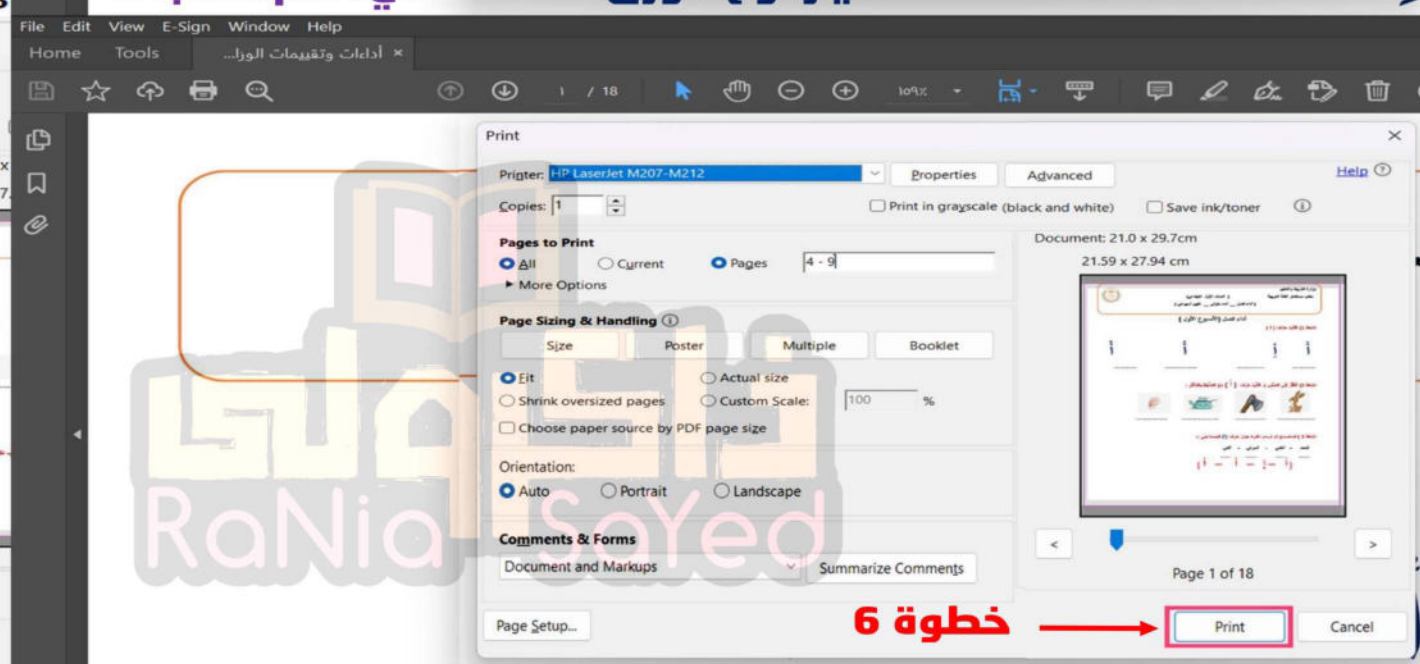
خطوة 2
اختيار اسم
الطابعة
بتاعتك

خطوة 3
كتابة الصفحات
المراد طباعتها
نكتب رقم 4 ثم
نكتب الشرطة
دي - ثم نكتب 9

خطوة 4
اختيار نوع الورق



خطوة 5
اختيار A4



خطوة 6

حمل الآن

مجاناً وحصرياً

امتحانات رقم (2)

الترم الاول



1- A) Complete the following sentences:

- 1 materials have the ability to flow and be compressed, while materials have the ability to flow only.
- 2 The reaction of silver nitrate solution with sodium chloride solution is indicated by the formation of a precipitate of

B) What is the importance of ...?

- 1 Carbohydrates for living organisms

.....

- 2 Radiator

.....

- 3 Sensory receptors in a snake's head

.....

.....

- 4 Stroma

.....

.....

2- A) Choose the correct answer:

- 1 Which of the following materials has the lowest thermal conductivity?
a) Iron. b) Aluminum. c) Copper. d) Wood.
- 2 is considered a mineraloid because it is not crystalline.
a) Talc b) Opal c) Halite d) Mica

B) Give a reason for:

- 1 It is preferred to represent a chemical reaction with a symbolic equation rather than a word equation.
.....
.....
- 2 It is preferred to use polystyrene sheets between hollow bricks when constructing buildings.
.....
.....

3 The occurrence of the San Andreas fault.

.....

4 The number of mitochondria increases in muscle cells.

.....

3- A) Write the scientific term:

1 A type of sugar composed of two monosaccharide units with the removal of one water molecule. (.....)

2 A method by which heat is transferred through space without the need for material particles. (.....)

B) First: What happens when ...?

1 Benedict's solution is added to a low concentration of glucose.

.....

2 Volcanic ash spreads in the environment.

.....

Second: Balance the following equations and write the physical states of reactants and products.

1 K (.....) + Br₂(.....) → 2 KBr (s).

2 Al (.....) + O₂ (.....) → Al₂O₃(s)

4- A) Put (✓) or (X):

1 Convergent movement of tectonic plates occurs due to descending convection currents. ()

2 Xylem vessels transport food from the leaves to other parts of the plant. ()

B) First: Define:

1 Catabolism processes

.....

.....

2 Isolated system

.....

Second: Look at the opposite figure, then answer:

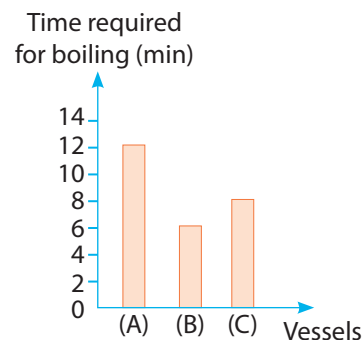
The opposite figure shows the time required for three vessels containing different amounts of water to reach boiling point, given that the flame source is constant for all three vessels.

1 Which vessel contains the largest amount of water?

(.....).

2 Identify the controlled variable and the independent variable in this experiment.

-
-



1- A) Choose the correct answer:

- 1 In which of the following processes does a substance gain thermal energy?
a) Freezing. b) Condensation. c) Sublimation. d) Deposition.
- 2 The ancient Egyptians used mineral in making eye makeup(kohl).
a) quartz b) sulfur c) galena d) opal

B) First: How can you detect the presence of ...?

- 1 Starch in food

•

- 2 Fats in food

•

Second: Compare between each of the following:

- 1 An open system and a closed system (in terms of exchange of matter and energy with the surroundings with examples).

Open system	Closed system
.....	
.....	

- 2 Chloroplasts and mitochondria in (terms of shape and importance).

Chloroplasts	Mitochondria
.....	
.....	

2- A) Complete the following sentences:

- 1 The Nile Delta is an example of soil, while is an example of sedentary soil.
- 2 The force of attraction between the particles of a solid are, and the interparticle spaces are

B) Define:

1 The internal energy of a system

-
-

2 Physical change

-
-

3 Enzymes

-
-

4 Brownian motion

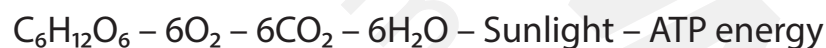
-
-

3- A) Correct the underlined words:

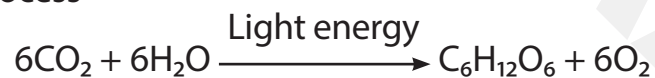
1 Light-dependent reactions occur in the stroma of the chloroplast. (.....)

2 Firefighters wear dark black uniforms to prevent heat absorption. (.....)

B) First: Use the following symbols and words to write two equations representing:



1 Photosynthesis process



2 Cellular respiration



Second: What is the importance of ...?

1 The DART radar

-

2 The metabolic rate analyzer

-

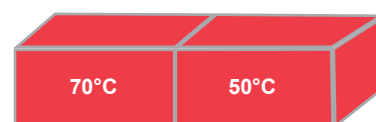
4- A) Write the scientific term:

- 1 The state in which the temperatures of two systems become equal and heat transfer stops. (.....)
- 2 Breaking the bonds between the atom of reacting molecules and forming new bonds between atoms of the product. (.....)

B) Answer the following questions:

- 1 The opposite figure shows two copper cubes in contact:

a) What is the expected temperature of the two cubes when thermal equilibrium is reached?



.....

b) By which method does heat transfer occur between the two cubes?

.....

- 2 Write the balanced symbolic chemical equation for the reaction of nitrogen gas with hydrogen gas to form ammonia gas, including the physical states of reactants and products.

.....

- 3 What happens when tectonic plates move side by side in opposite directions?

.....

1- A) Correct the underlined words:

- 1 The Great African Rift Valley is formed as a result of convergent movement of continental tectonic plates. (.....)
- 2 Lactic acid is produced in the first stage of cellular respiration. (.....)

B) Give a reason for:

- 1 Human body has a large percentage of water.

- 2 A gas has indefinite shape and indefinite volume.

- 3 The occurrence of diabetes in some individuals.

- 4 Earthquakes cause material (economic) losses.

2- A) Write the scientific term:

- 1 A biological process in which oxygen and carbon dioxide are exchanged with the surrounding environment. (.....)
- 2 The amount of heat needed to raise the temperature of 1 kg of a substance by 1°C. (.....)

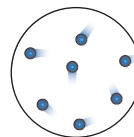
B) Look at the opposite figures, then answer:

- 1 Which of the figures represents a fluid?

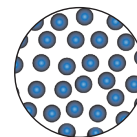
- 2 Which of the particles is compressible?

- 3 State the name of the process in which the substance changes from state (3) to state (1).

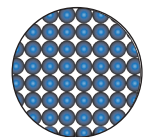
- 4 A substance loses thermal energy when it changes from figure 2 to figure



(1)



(2)



(3)

3- A) Correct the following sentences:

1 Carbohydrates are made up of basic units called amino acids.

.....

2 The theory of tectonic plates was proposed by Alfred Wegener.

.....

B) First: How can you deduce that a chemical reaction has occurred in the following experiments?

1 Frying an egg

.....

2 Adding a piece of magnesium ribbon to a test tube containing hydrochloric acid.

.....

Second: Look at the figures, then answer:

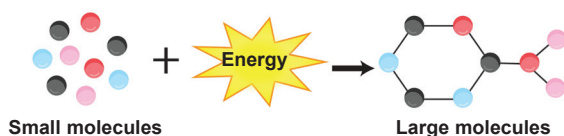


Figure 1

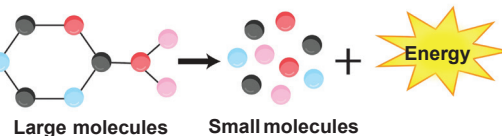


Figure 2

1 Which figure represents a **catabolic process**? Give an example.

.....

2 Which figure represents an **anabolic process**? Give an example.

.....

4- A) Complete the following sentences:

1 During the and processes, the temperature of the substance remains constant.

2 Silica-rich magma forms minerals such as and during solidification.

B) First: What happens when ...?

1 Two oceanic tectonic plates converge toward each other.

.....

2 Solid iodine is heated.

.....

Second: Write the chemical name for each of the following:

1 Baking soda (.....)

2 Vinegar (.....)

1- A) Complete the following sentences:

- 1 Energy transfers from the system with a temperature to the system with a temperature.
- 2 One of the indications of a chemical reaction is the formation of a such as when adding silver nitrate solution to a solution.

B) Give a reason for:

- 1 Wet clothes dry faster during the day under bright sunlight than at night.
.....
- 2 When a zinc plate is placed in a beaker containing blue copper sulfate solution, the blue color disappears.
.....
- 3 Plant leaves appear green.
.....
.....
- 4 Opal is described as a mineraloid although it has a definite chemical composition.
.....

2- A) Write the scientific term:

- 1 A naturally occurring solid inorganic substance that has a crystalline structure and a specific composition. (.....)
- 2 A system in which no exchange of matter or energy occurs with the surroundings. (.....)

B) Compare between each of the following:

- 1 Iron and oxygen "in terms of interparticle forces and interparticle spaces".

P.O.C	Iron	Oxygen
Interparticle forces		
Interparticle spaces		

- 2 Two equal masses of sand and water exposed to sunlight for the same duration “in terms of internal energy and temperature”.

P.O.C	An amount of sand	An amount of water
Internal energy		
Temperature		

- 3 Fats and proteins “in terms of their detection methods”

P.O.C	Fats	Proteins
Method of detection		

- 4 The first stage of photosynthesis and cellular respiration “in terms of the location of occurrence”.

P.O.C	First stage of photosynthesis	First stage of cellular respiration
Location of occurrence		

3- A) Choose the correct answer:

- 1 All of the following are natural phenomena that change the Earth's surface, except
 a) volcanic eruptions b) aurora
 c) meteor impacts d) earthquakes
- 2 The process in which dry ice changes directly into the gaseous state is called
 a) melting b) freezing c) sublimation d) deposition

B) What happens when ...?

- 1 The breakdown of pyruvic acid in the mitochondrial matrix.
 •
- 2 The convergence of two continental plates.
 •
- 3 Exposing silver chloride precipitate to sunlight.
 •
- 4 Placing the hand near a hot lamp without touching it.
 •

4- A) Cross out the odd word:

- 1 Iron rusting – frying eggs – dissolving sugar in water – burning wax. (.....)
- 2 Melting ice – dissolving salt in water – fruit decay – cutting paper. (.....)

B) Answer the following:

- 1 Write the balanced symbolic equations for the following reactions, including the physical state of reactants and products, and the reaction condition.
- (a) Combustion of methane gas in the presence of oxygen gas to form carbon dioxide gas and water vapor.
-
- (b) Reaction of solid iodine with hydrogen gas to produce hydrogen iodide gas.
-
- 2 Chloroplasts consist of several components. Mention the function of the following parts.

a) Stroma:

•

b) Double membrane:

•

1- A) Choose the correct answer:

- 1 A piece of ice cube is added to cup of orange juice at 25°C , and after 5 minutes the temperature of the cup became 9°C . The temperature of the remaining ice pieces would be $^{\circ}\text{C}$.
a) 25 b) 0 c) 9 d) 12
- 2 Which of the following is considered a monosaccharide?
a) Sucrose. b) Maltose. c) Glucose. d) Cellulose.

B) First: Determine which of the following is catabolic process or anabolic process:

- 1 Converting glucose into glycogen (.....)
- 2 Breaking down proteins into amino acids (.....)

Second: Give one example for each of the following:

- 1 A translucent mineral (.....)
- 2 An isolated system (.....)

2- A) Put (✓) or (X):

- 1 When silver chloride precipitate is exposed to sunlight, it changes from yellow to violet. ()
- 2 Heat is transferred in solids due to the movement of the particles from one place to another. ()

B) Give a reason for:

- 1 The temperature of a quantity of oil increases faster than the temperature of the same quantity of water.
•
- 2 Flower petals are colored.
•
- 3 Burning sugar is a chemical change.
•
•
- 4 The boiling point of water decreases with increasing altitude above sea level.
•

3- A) Write the scientific term:

- 1 Any part of the universe that is under study, where the changes in matter and energy are observed. (.....)
- 2 The movement of cool air from the sea toward the land during the daytime due to temperature differences. (.....)

B) First: What happens when ...?

- 1 A magnesium strip is burnt in air.
.....
- 2 The reactions of the electron transport chain inside the mitochondria stop.
.....

Second: Mention two factors that affect the rate of evaporation.

- 1
- 2

4- A) Correct the following sentences:

- 1 The soil of the Nile Delta in Egypt is residual soil.
.....
- 2 When iodine solution is added to a green plant leaf containing starch, it turns red.
.....

B) First: Define:

- 1 Catalysts
.....
- 2 Plasma
.....

Second: Compare between each of the following:

- 1 Heat transfer by convection and by radiation (Give an example for each).

P.O.C	Thermal convection	Thermal radiation
Transport medium		
Example		

- 2 The Himalayas and the Andes in terms of how each was formed.

P.O.C	Himalayas mountain	Andes
Cause of formation		

1- A) Complete the following sentences:

- 1 Gas materials have the ability to flow and be compressed, while liquids materials have the ability to flow only.
- 2 The reaction of silver nitrate solution with sodium chloride solution is indicated by the formation of a white precipitate of silver chloride.

B) What is the importance of ...?

- 1 Carbohydrates for living organisms
 - They are sources of energy and participate in the formation of flower nectar.
- 2 Radiator
 - Cooling car engines and protecting them from damage.
- 3 Sensory receptors in a snake's head
 - They enable the snake to detect infrared radiation emitted from the bodies of prey, which helps it hunt at night.
- 4 Stroma
 - It contains most of the enzymes necessary for the occurrence of the light independent reactions.

2- A) Choose the correct answer:

- 1 Which of the following materials has the lowest thermal conductivity?
a) Iron. b) Aluminum. c) Copper. d) Wood.
- 2 is considered a mineraloid because it is not crystalline.
a) Talc b) Opal c) Halite d) Mica

B) Give a reason for:

- 1 It is preferred to represent a chemical reaction with a symbolic equation rather than a word equation.
 - Because the word equation does not show the number of molecules or atoms involved in the reaction.
- 2 It is preferred to use polystyrene sheets between hollow bricks when constructing buildings.
 - Because polystyrene is an excellent thermal insulator, so polystyrene sheets reduce the rate of heat transfer through the wall.

- 3 The occurrence of the San Andreas fault.
 - Due to the transform movement of tectonic plates.
- 4 The number of mitochondria increases in muscle cells.
 - Because they require a large amount of energy.

3- A) Write the scientific term:

- 1 A type of sugar composed of two monosaccharide units with the removal of one water molecule. (Disaccharides)
- 2 A method by which heat is transferred through space without the need for material particles. (Thermal radiation)

B) First: What happens when ...?

- 1 Benedict's solution is added to a low concentration of glucose.
 - Benedict's solution turns into green.
- 2 Volcanic ash spreads in the environment.
 - It leads to air and water pollution and the formation of acid rains.

Second: Balance the following equations and write the physical states of reactants and products.

- 1 $2\text{K (s)} + \text{Br}_2\text{(L)} \rightarrow 2\text{KBr (s)}$.
- 2 $4\text{Al (s)} + 3\text{O}_2\text{(g)} \rightarrow 2\text{Al}_2\text{O}_3\text{(s)}$

4- A) Put (✓) or (X):

- 1 Convergent movement of tectonic plates occurs due to descending convection currents. (✓)
- 2 Xylem vessels transport food from the leaves to other parts of the plant. (X)

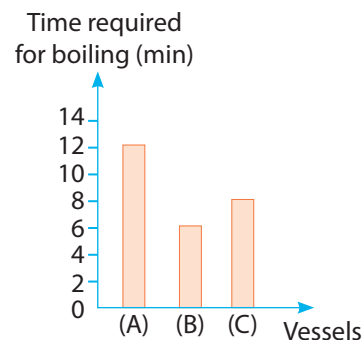
B) First: Define:

- 1 Catabolism processes
 - They are processes in which the energy of ATP molecules is released by breaking down large molecules that have been built before into simpler molecules.
- 2 Isolated system
 - A system in which neither energy nor matter is exchanged with the surroundings.

Second: Look at the opposite figure, then answer:

The opposite figure shows the time required for three vessels containing different amounts of water to reach boiling point, given that the flame source is constant for all three vessels.

- 1 Which vessel contains the largest amount of water?
(Vessel (A)).
- 2 Identify the controlled variable and the independent variable in this experiment.
 - a- controlled variable: - Type of mater – flame source
 - b- independent variable: - The amount of water



1- A) Choose the correct answer:

- 1 In which of the following processes does a substance gain thermal energy?
a) Freezing. b) Condensation. c) Sublimation. d) Deposition.
- 2 The ancient Egyptians used mineral in making eye makeup(kohl).
a) quartz b) sulfur c) galena d) opal

B) First: How can you detect the presence of ...?

- 1 Starch in food
• Using iodine solution, where its color changes from yellow-brown to dark blue.
- 2 Fats in food
• Using Sudan 4 solution, an orange-red color is produced.

Second: Compare between each of the following:

- 1 An open system and a closed system (in terms of exchange of matter and energy with the surroundings with examples).

Open system	Closed system
It is a system in which both energy and matter are exchanged with the surroundings. Example: An open pot	It is a system in which only energy is exchanged with the surroundings. Example: A soft drink can

- 2 Chloroplasts and mitochondria in (terms of shape and importance).

Chloroplasts	Mitochondria
They are lentil-shaped.	They are bean-shaped.
Photosynthesis process occurs inside them.	Cellular respiration occurs inside them.

2- A) Complete the following sentences:

- 1 The Nile Delta is an example of transported soil, while Mariout is an example of sedentary soil.
- 2 The force of attraction between the particles of a solid are very strong, and the interparticle spaces are very small.

B) Define:

- 1 The internal energy of a system
 - It is the summation of the kinetic and potential energies of all the particles of the system.
- 2 Physical change
 - It is a change in the state or shape of a substance without a change in its chemical composition.
- 3 Enzymes
 - They are proteins that act as catalysts, increasing the rate of the light-independent reactions.
- 4 Brownian motion
 - It is the random motion of particles in all directions as a result of collisions between them.

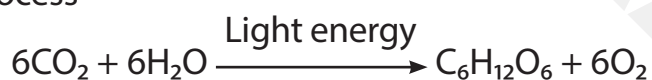
3- A) Correct the underlined words:

- 1 Light-dependent reactions occur in the stroma of the chloroplast. (Grana)
- 2 Firefighters wear dark black uniforms to prevent heat absorption. (Shiny silver)

B) First: Use the following symbols and words to write two equations representing:



- 1 Photosynthesis process



- 2 Cellular respiration



Second: What is the importance of ...?

- 1 The DART radar
 - Changing the orbit of meteors to protect the Earth from meteor impacts.
- 2 The metabolic rate analyzer
 - It provides accurate data about the resting metabolic rate.

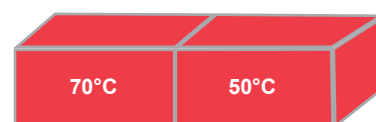
4- A) Write the scientific term:

- 1 The state in which the temperatures of two systems become equal and heat transfer stops. (Thermal equilibrium)
- 2 Breaking the bonds between the atom of reacting molecules and forming new bonds between atoms of the product. (Chemical reaction)

B) Answer the following questions:

- 1 The opposite figure shows two copper cubes in contact:

a) What is the expected temperature of the two cubes when thermal equilibrium is reached?



- 60 °C

b) By which method does heat transfer occur between the two cubes?

- Thermal conduction

- 2 Write the balanced symbolic chemical equation for the reaction of nitrogen gas with hydrogen gas to form ammonia gas, including the physical states of reactants and products.



- 3 What happens when tectonic plates move side by side in opposite directions?

- Formation of long faults such as the San Andreas Fault.

1- A) Correct the underlined words:

- 1 The Great African Rift Valley is formed as a result of convergent movement of continental tectonic plates. (divergent)
- 2 Lactic acid is produced in the first stage of cellular respiration. (Pyruvic acid)

B) Give a reason for:

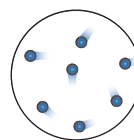
- 1 Human body has a large percentage of water.
 - Due to the high specific heat of water, it requires a large amount of heat to change its temperature, which helps maintain the body's temperature constant.
- 2 A gas has indefinite shape and indefinite volume.
 - Because the interparticle forces are very weak, and the interparticle spaces are very large.
- 3 The occurrence of diabetes in some individuals.
 - Due to the accumulation of glucose in the blood as a result of insufficient insulin secretion from the pancreas.
- 4 Earthquakes cause material (economic) losses.
 - Because they cause destruction of buildings and infrastructure.

2- A) Write the scientific term:

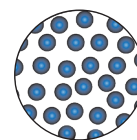
- 1 A biological process in which oxygen and carbon dioxide are exchanged with the surrounding environment. (Cellular respiration)
- 2 The amount of heat needed to raise the temperature of 1 kg of a substance by 1°C. (Specific heat)

B) Look at the opposite figures, then answer:

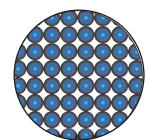
- 1 Which of the figures represents a fluid?
 - Figures (1) and (2).
- 2 Which of the particles is compressible?
 - Figure (1).
- 3 State the name of the process in which the substance changes from state (3) to state (1).
 - Sublimation.
- 4 A substance loses thermal energy when it changes from figure 2 to figure
 - (3).



(1)



(2)



(3)

3- A) Correct the following sentences:

- 1 Carbohydrates are made up of basic units called amino acids.
 - Proteins are made up of basic units called amino acids.
- 2 The theory of tectonic plates was proposed by Alfred Wegener.
 - The continental drift hypothesis was proposed by the scientist Alfred Wegener.

B) First: How can you deduce that a chemical reaction has occurred in the following experiments?

- 1 Frying an egg
 - A change in color and consistency occurs in both the egg white and yolk.
- 2 Adding a piece of magnesium ribbon to a test tube containing hydrochloric acid.
 - Gas bubbles of hydrogen are released.

Second: Look at the figures, then answer:

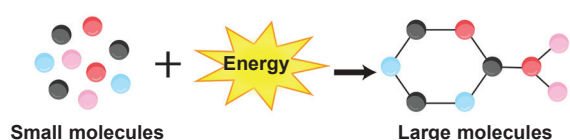


Figure 1

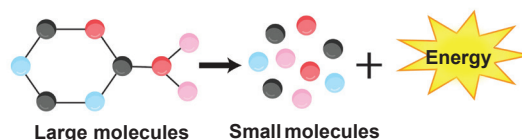


Figure 2

- 1 Which figure represents a **catabolic process**? Give an example.
 - Figure (2) – Breakdown of protein molecules during digestion.
- 2 Which figure represents an **anabolic process**? Give an example.
 - Figure (1) – Formation of proteins from amino acids.

4- A) Complete the following sentences:

- 1 During the **melting** and **boiling** processes, the temperature of the substance remains constant.
- 2 Silica-rich magma forms minerals such as **mica** and **quartz** during solidification.

B) First: What happens when ...?

- 1 Two oceanic tectonic plates converge toward each other.
 - New chains of volcanic islands form, such as the Japanese islands.
- 2 Solid iodine is heated.
 - It sublimates directly from the solid state to the gaseous state.

Second: Write the chemical name for each of the following:

- 1 Baking soda (Sodium bicarbonate)
- 2 Vinegar (Acetic acid)

1- A) Complete the following sentences:

- 1 Energy transfers from the system with a **higher** temperature to the system with a **lower** temperature.
- 2 One of the indications of a chemical reaction is the formation of a **precipitate** such as when adding silver nitrate solution to a **sodium chloride** solution.

B) Give a reason for:

- 1 Wet clothes dry faster during the day under bright sunlight than at night.
 - Due to the increase in the rate of water evaporation at higher temperature.
- 2 When a zinc plate is placed in a beaker containing blue copper sulfate solution, the blue color disappears.
 - Because a colorless zinc sulfate solution is formed.
- 3 Plant leaves appear green.
 - Because it contains the chlorophyll pigment, which absorbs all colors of the spectrum and reflects green.
- 4 Opal is described as a mineraloid although it has a definite chemical composition.
 - Because it is not crystalline.

2- A) Write the scientific term:

- 1 A naturally occurring solid inorganic substance that has a crystalline structure and a specific composition. (Mineral)
- 2 A system in which no exchange of matter or energy occurs with the surroundings. (Isolated system)

B) Compare between each of the following:

- 1 Iron and oxygen "in terms of interparticle forces and interparticle spaces".

P.O.C	Iron	Oxygen
Interparticle forces	Very strong	Very weak
Interparticle spaces	Very small	Very large

- 2 Two equal masses of sand and water exposed to sunlight for the same duration “in terms of internal energy and temperature”.

P.O.C	An amount of sand	An amount of water
Internal energy	Larger	Smaller
Temperature	Higher	Lower

- 3 Fats and proteins “in terms of their detection methods”

P.O.C	Fats	Proteins
Method of detection	Using Sudan 4 solution, a red-orange color is formed	Using Biuret solution, the color of the solution changes from blue to violet.

- 4 The first stage of photosynthesis and cellular respiration “in terms of the location of occurrence”.

P.O.C	First stage of photosynthesis	First stage of cellular respiration
Location of occurrence	Grana	Cytoplasm

3- A) Choose the correct answer:

- 1 All of the following are natural phenomena that change the Earth's surface, except
 a) volcanic eruptions b) aurora
 c) meteor impacts d) earthquakes
- 2 The process in which dry ice changes directly into the gaseous state is called
 a) melting b) freezing c) sublimation d) deposition

B) What happens when ...?

- 1 The breakdown of pyruvic acid in the mitochondrial matrix.
 • A limited amount of energy is produced in the form of ATP molecules and carbon dioxide gas.
- 2 The convergence of two continental plates.
 • It results in the formation of mountain ranges such as the Himalayas.
- 3 Exposing silver chloride precipitate to sunlight.
 • Its color changes from white to violet.
- 4 Placing the hand near a hot lamp without touching it.
 • Heat is transferred from the lamp to the hand through convection and radiation.

4- A) Cross out the odd word:

- 1 Iron rusting – frying eggs – dissolving sugar in water – burning wax.
(dissolving sugar in water)
- 2 Melting ice – dissolving salt in water – fruit decay – cutting paper. (fruit decay)

B) Answer the following:

- 1 Write the balanced symbolic equations for the following reactions, including the physical state of reactants and products, and the reaction condition.

(a) Combustion of methane gas in the presence of oxygen gas to form carbon dioxide gas and water vapor.



(b) Reaction of solid iodine with hydrogen gas to produce hydrogen iodide gas.



- 2 Chloroplasts consist of several components. Mention the function of the following parts.

a) Stroma:

- It is the location where a series of light-independent reactions occur during photosynthesis.

b) Double membrane:

- It allows the movement of substances into and out of the plastid.

1- A) Choose the correct answer:

- 1 A piece of ice cube is added to cup of orange juice at 25°C, and after 5 minutes the temperature of the cup became 9°C. The temperature of the remaining ice pieces would be °C.
a) 25 b) 0 c) 9 d) 12
- 2 Which of the following is considered a monosaccharide?
a) Sucrose. b) Maltose. c) Glucose. d) Cellulose.

B) First: Determine which of the following is catabolic process or anabolic process:

- 1 Converting glucose into glycogen (Anabolism)
- 2 Breaking down proteins into amino acids (Catabolism)

Second: Give one example for each of the following:

- 1 A translucent mineral (Mica)
- 2 An isolated system (Thermos)

2- A) Put (✓) or (X):

- 1 When silver chloride precipitate is exposed to sunlight, it changes from yellow to violet. (X)
- 2 Heat is transferred in solids due to the movement of the particles from one place to another. (X)

B) Give a reason for:

- 1 The temperature of a quantity of oil increases faster than the temperature of the same quantity of water.
• Because the specific heat of oil is lower than that of water.
- 2 Flower petals are colored.
• Because it contains colored plastids.
- 3 Burning sugar is a chemical change.
• Because it produces new substances that differ in their chemical properties from those of the original material.
- 4 The boiling point of water decreases with increasing altitude above sea level.
• Because atmospheric pressure decreases at higher altitudes.

3- A) Write the scientific term:

- 1 Any part of the universe that is under study, where the changes in matter and energy are observed. (System)
- 2 The movement of cool air from the sea toward the land during the daytime due to temperature differences. (Sea breeze)

B) First: What happens when ...?

- 1 A magnesium strip is burnt in air.
 - Light and heat are emitted, and a white powder of magnesium oxide is formed.
- 2 The reactions of the electron transport chain inside the mitochondria stop.
 - A large amount of energy is not produced, and water is not formed.

Second: Mention two factors that affect the rate of evaporation.

- 1 Temperature
- 2 Surface area of the liquid exposed to air

4- A) Correct the following sentences:

- 1 The soil of the Nile Delta in Egypt is residual soil.
 - The soil of the Nile Delta in Egypt is transported soil.
- 2 When iodine solution is added to a green plant leaf containing starch, it turns red.
 - When iodine solution is added to a green leaf containing starch, its color turns into dark blue.

B) First: Define:

- 1 Catalysts
 - They are substances that change the rate of a chemical reaction without being consumed.
- 2 Plasma
 - The fourth state of matter, which occurs when gases are ionized to form positively charged ions and free negatively charged electrons.

Second: Compare between each of the following:

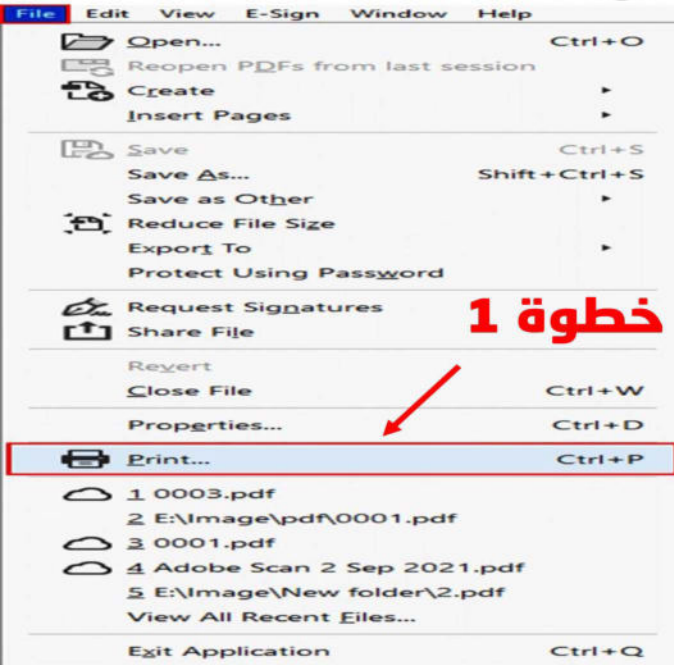
- 1 Heat transfer by convection and by radiation (Give an example for each).

P.O.C	Thermal convection	Thermal radiation
Transport medium	Liquids and gases	Space and gases
Example	Heating water in a pot on a heat source	Feeling the heat of the sun

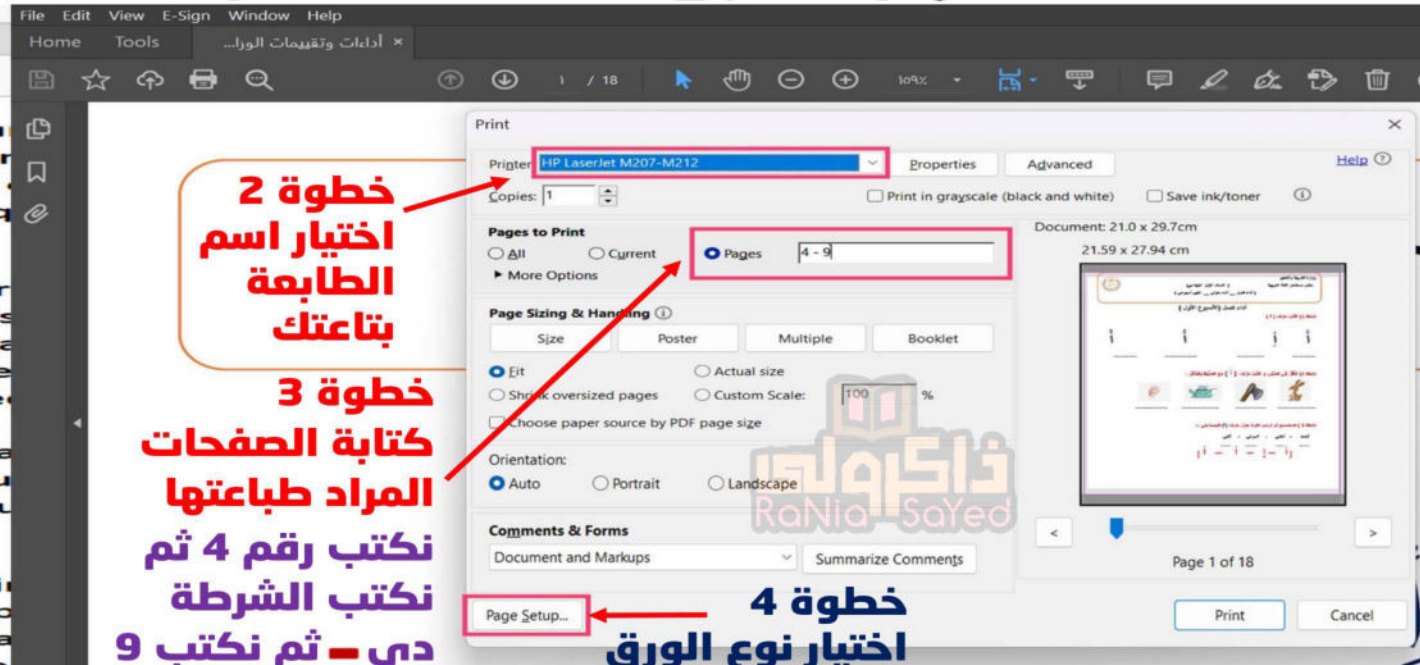
- 2 The Himalayas and the Andes in terms of how each was formed.

P.O.C	Himalayas mountain	Andes
Cause of formation	Convergence of two continental plates	Convergence of an oceanic plate with a continental plate

كيفية طباعة صفحات معينة من ملف معين مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9



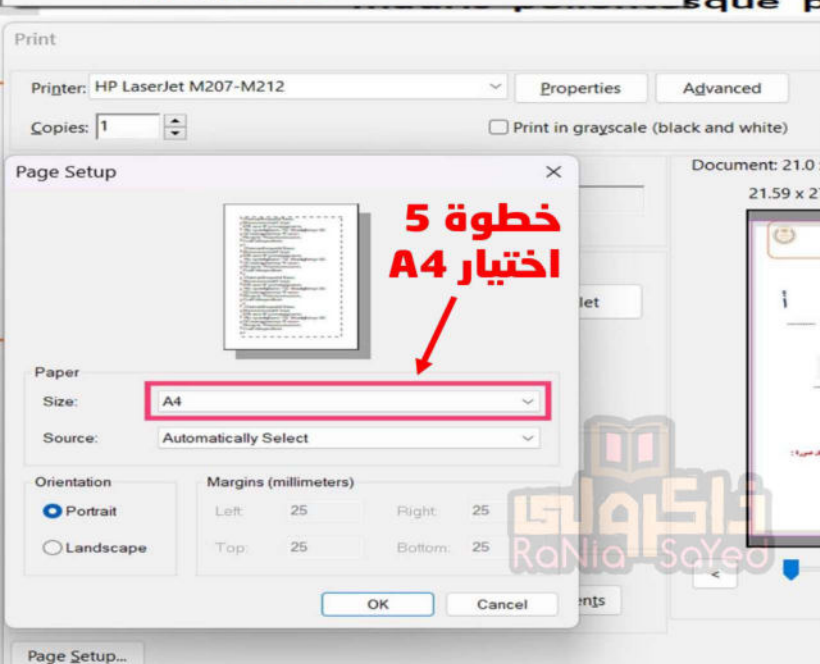
خطوة 1



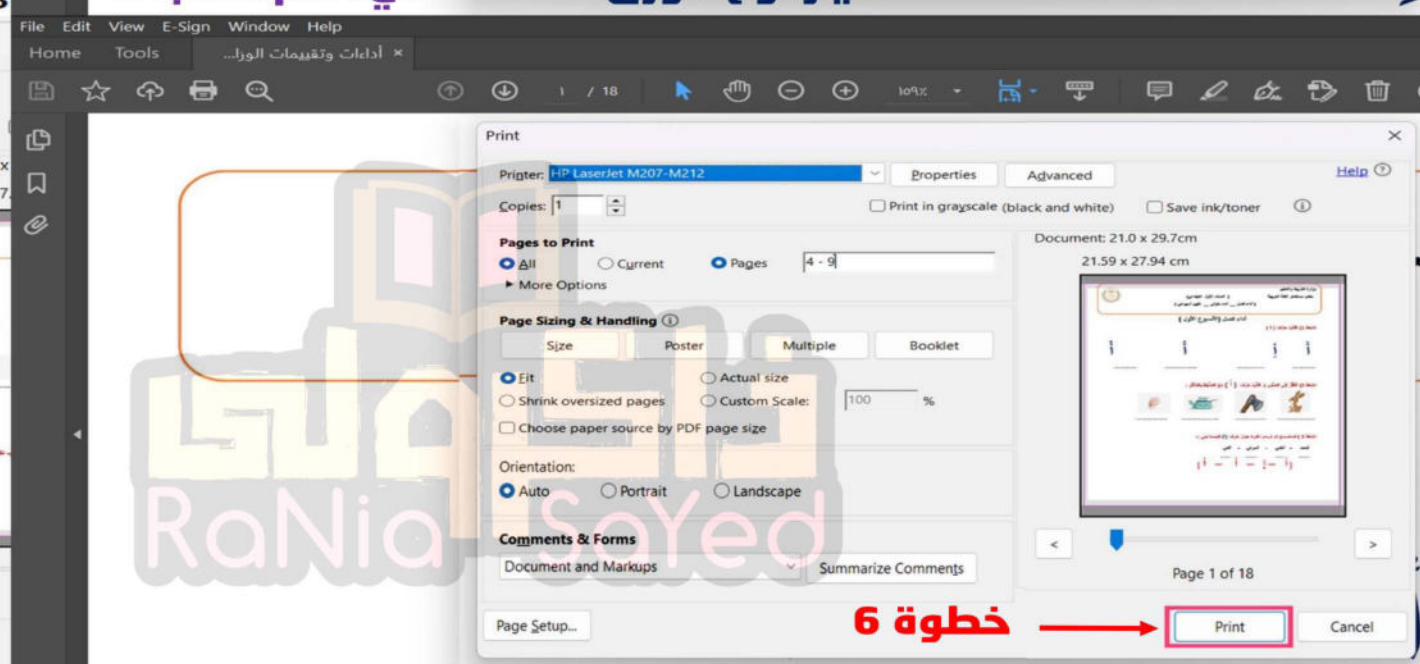
خطوة 2
اختيار اسم
الطابعة
بتاعتك

خطوة 3
كتابة الصفحات
المراد طباعتها
نكتب رقم 4 ثم
نكتب الشرطة
دي - ثم نكتب 9

خطوة 4
اختيار نوع الورق



خطوة 5
اختيار A4



خطوة 6